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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,437	06/19/2002	Christian Laurent-Lund	P67700USO	9215

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WASHINGTON, DC 20004

EXAMINER

MENEFEE, JAMES A

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/070,437

Applicant(s)

LAURENT-LUND ET AL.

Examiner

James A. Menefee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35-68 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 35-68 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.



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Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20020905</u> . | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Response to Amendment

In response to the preliminary amendment, the specification is amended, claims 1-34 cancelled, and claims 35-68 added. Claims 35-68 are pending.

Specification

The abstract of the disclosure is objected to because it is greater than 150 words. Correction is required. See MPEP § 608.01(b), 37 CFR 1.72.

Drawings

The drawings are objected to because the lines in the drawings are not uniformly thick and well defined as required by 37 CFR 1.84(l). This applies to all the figures.

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 61 objected to because of the following informalities: The extra period at the end of the claim must be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 35-49, 51, 56, 63, and 67 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 35 and 37, the claims each refer twice to “a laser substrate.” The substrates should be referred to as first and second substrates.

Regarding claims 36, 38, 46, 47, 51, 56, 63, and 67, the phrase “such as” renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Further regarding claim 63, there is insufficient antecedent basis for “ dn_{eff}/dw ”. It is believed this claim should depend on claim 62.

The remaining claims are rejected as indefinite for depending on a rejected base claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 61, 65, and 68 are rejected under 35 U.S.C. 102(a) as being anticipated by Veasey et al. (Applied Physics Letters, vol. 74 no. 6, Feb. 1999, previously cited).

Regarding claim 61, Veasey discloses forming a glass-based waveguide structure inherently having core and cladding regions, providing an active region in the core, and forming

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first and second reflective members in the core to form a laser cavity with the active region. The core has a width at the reflective member. The effective refractive index is inherently dependent on the core width, and the predetermined wavelength of the laser is inherently dependent on the effective refractive index.

Regarding claim 65, Veasey discloses providing first and second lasers each comprising a substrate holding a glass-based waveguide inherently including a core and cladding defining a refractive index profile, the core comprising an active region doped by a plurality of dopants, and two reflective members formed in the core to form a laser cavity with the active region supporting a laser mode. The width of the cores is inherently formed by the core width, and predetermined wavelengths of the lasers are inherently dependent on the refractive index profiles.

Regarding claim 68, the reflectors are Bragg gratings having substantially the same period.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 35-60, 62-64, and 66-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veasey et al. (Applied Physics Letters, vol. 74 no. 6, Feb. 1999, previously cited).

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Regarding claims 35-38, 40, 46, 50-51, 60, 62-63, and 66-67, Veasey discloses a laser system comprising first and second lasers, each laser comprising a laser substrate holding a glass-based waveguide structure having a core and cladding, the core comprising an active region of plural dopants, and reflective members formed in the core to form a laser cavity supporting a laser mode that experiences an effective refractive index at one of the reflectors and having a width. The effective refractive index of each laser is different.

It is not disclosed that the width and effective refractive indexes and the wavelength have the relationships as claimed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust these variables by experimentation to find these claimed ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust these result effective variables, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 39, the first and second lasers are single mode and emit at first and second frequencies.

Regarding claims 41-42, 52, the laser substrates are the same. It is not disclosed that the substrate or claddings are silicon. It is well known in the art to form lasers on silicon substrates. It would have been obvious to one skilled in the art to form these lasers on silicon, as silicon substrates provide a good base for lasers without interfering with the lasing activity, as is well known.

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Regarding claim 43, 53, Yb and Er dope the glass.

Regarding claims 44-45, 54-55, 64, the reflectors are formed by periodic gratings formed by refractive index modulation.

Regarding claim 47, 56, the output wavelength is within the claimed range.

Regarding claim 48, 57, the output power is within the claimed range.

Regarding claim 49, 58, a pump pumps the active regions with the wavelength in the claimed range.

Regarding claim 59, the lasers have different widths and thus emit at different frequencies.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (571) 272-1944. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (571) 272-1941. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JM
February 26, 2004



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